

Abstract for SamPrep Conference

Title: Carbon Aerogel: A Potential New Extraction Medium for Polar Organic Compounds

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Abstract:

Carbon aerogel is an electrically conductive, low atomic number material with a hydrophilic surface area approximately 50,000 times its footprint. Carbon aerogel is similar to activated carbon or charcoal, but with important differences. Carbon aerogel synthesis is highly reproducible, allowing good control of surface area and pore volume. Carbon aerogel microspheres with varying properties were prepared and evaluated for use as solid phase extraction media for the removal of parts-per-billion concentrations of polar organic compounds from water. Two standard mixtures were used to evaluate carbon aerogels: a base/neutral/acid compound mix (containing phenols, halogenated aromatics, polycyclic aromatic compounds, and pesticides) and a mixture containing polar compounds (alkyl methylphosphonates, alcohols, amines, and halogenated compounds). Analyte recoveries from carbon aerogels are compared with those obtained by extraction with a silica-based C-18 material and a polystyrene-divinylbenzene polymer material. Desorption characteristics for BNA analytes on each extraction material were determined. All phases required similar amounts of solvents to elute analytes from their surfaces and their recovery *versus* elution volume curves were similar. Results suggest that carbon aerogel is a good adsorbent for many organic compounds.

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